

Amendments to the Claims:

The text of all pending claims, (including withdrawn claims) is set forth below. Canceled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strikethrough~~. The status of each claim is indicated with one of (original), (currently amended), (canceled), (withdrawn), (new), (previously presented), or (not entered).

Applicants reserve the right to pursue any canceled claims at a later date.

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1.-4. (canceled)

5. (currently amended) A diagnostic system for a check valve of a positive displacement pump having a solid-borne sound sensor, comprising:

a first valve;

a second valve;

a bandpass filter to filter a signal recorded with the solid-borne sound sensor, wherein
a first value of a first sound signal is recorded in a closed state of a~~the~~ first valve; and a second value of a second sound signal is recorded in an open state of the second valve;

an evaluation device for determining the valve state of the first valve and the second valve;

a calculating device to calculate sound levels based upon the values of the recorded sound signals corresponding to the states of the valves;

a comparing device to compare the sound levels of the open state and the closed state to create a difference between the sound levels, wherein the first value is determined based on a last sound signal recorded in the closed state and the second value is determined based on a last sound signal recorded in the open state; and

a comparator to compare the difference between the sound levels with a predetermined threshold value, wherein a signal is outputed for displaying a fault, if the deviation of the first value from the second value exceeds at the pre-determinable threshold value.

6. (canceled)

7. (currently amended) The diagnostic system in accordance with claim 65, wherein the first valve is a check valve of the positive displacement pump and/or the second valve is a check valve of the positive displacement pump

8. (previously presented) The diagnostic system in accordance with claim 7, wherein the evaluation device determines the valve state based on the first sound signal recorded and/or the second sound signal recorded.

9. (currently amended) A diagnostic system for a check valve of a positive displacement pump having a solid-borne sound sensor, comprising:

a calculating device to calculate a first sound level; first value of a first sound signal recorded in a closed state of a valve and to calculate a second sound level; of a second value of a second sound signal recorded in an open state of the valve, wherein a first sound value is determined based on a last sound signal recorded in the closed state and a second value is determined based on a last sound signal recorded in the open state;

an evaluation device for determining the valve state of the valve; and

a signal output for displaying the fault if the deviation of the first sound level determined for the closed state of the valve value from the second sound level determined for the open state of the valve value exceeds a pre-determinable threshold value.

10. (previously presented) The diagnostic system in accordance with claim 10, wherein the first value is determined based on a last sound signal recorded in the closed state and the second value is determined based on a last sound signal recorded in the open state.

11. (previously presented) The diagnostic system in accordance with claim 10, wherein the valve is a check valve of the positive displacement pump.

12. (previously presented) The diagnostic system in accordance with claim 11, wherein the evaluation device determines the valve state based on the first sound signal recorded and/or the second sound signal recorded.

13. (currently amended) A diagnostic method for a check valve of a positive displacement pump having a solid-borne sound sensor, comprising:
- determining a first sound signal recorded in the closed state of a first valve;
- determining a second sound signal recorded in the open state of a second valve or in the open state of the first valve, wherein the second sound signal is determined near the time of the determination of the first sound signal; and
- displaying a fault via an output signal, the signal is output if the deviation of the first value from the second value exceeds a pre-determinable threshold value.

14. (canceled)

15. (new) The diagnostic method in accordance with claim 13, wherein a delay unit is delaying one of the recorded sound signals before the deviation of the sound signals is determined.

16. (new) The diagnostic method in accordance with claim 13, wherein the first value is determined based on a last sound signal recorded in the closed state and the second value is determined based on a last sound signal recorded in the open state.

17. (new) The diagnostic method in accordance with claim 16, wherein the recorded sound signals are filtered.

18. (new) The diagnostic method in accordance with claim 17, wherein a delay unit is delaying one of the recorded sound signals before the deviation of the sound signals is determined.

19. (new) The diagnostic method in accordance with claim 17, wherein the state of at least one valve is determined based upon an auto correlation.

20. (new) The diagnostic method in accordance with claim 17, wherein the state of at least one valve is determined based upon a position generator.